

CONTENT ADDRESSABLE MEMORY DEVICES WITH VIRTUAL PARTITIONING AND METHODS OF OPERATING THE SAME

ABSTRACT OF THE DISCLOSURE

CAM devices and methods of operating CAM devices include mapping search word portions to partitions and virtual subpartitions in a CAM core. Some embodiments of the invention can provide, for example, a hybrid CAM device that includes a mapping circuit for implementing such partitioning and virtual

5 subpartitioning that is implemented in memory, such as a random access memory (RAM) or a combination of CAM and RAM, that is integrated with the CAM core. In some embodiments, a CAM device includes a search word input, a CAM core comprising a plurality of CAM cells, and a virtual partitioning circuit that selectively enables a partition in the CAM core for search of a portion of a search word at the

10 search word input responsive to the search word, and that provides a mapping of the search word to a comparand input to the CAM core. The mapping defines a virtual subpartition in the CAM core. The invention may be embodied as apparatus and methods.